

CLAIMS

What is claimed is:

1. A method of managing XML documents, comprising:

receiving an original XML document that includes information from a hierarchical database;

generating a copy of the original XML document;

annotating the original XML document with an identifier that uniquely identifies each node in the document and a corresponding node in the copy of the XML document;

accepting at least one edit operation to the original XML document;

modifying at least one annotation to the original XML document in response to the at least one edit operation;

identifying at least one change to the original XML document as a result of the at least one edit operation; and

updating the database to reflect the change to the original XML document.
2. The method of claim 1, wherein annotating the original XML document with an identifier that uniquely identifies each node in the document and a corresponding node in the copy of the XML document comprises assigning an annotated identifier to each node in the original XML document.

3. The method of claim 2, wherein the annotated identifier is characterized by an attribute that is assigned a namespace that uniquely identifies an update process.

4. The method of claim 3, wherein the attribute is characterized by a name that is randomly generated.

5. The method of claim 1, wherein:
annotating the original XML document with an identifier that uniquely identifies each node in the document and a corresponding node in the copy of the XML document comprises assigning an annotated identifier to each node in the original XML document; and
modifying at least one annotation to the original XML document in response to the at least one edit operation comprises removing the annotated identifier from one or more nodes that are copies of another node in the document.

6. The method of claim 1, wherein identifying at least one change to the original XML document as a result of the at least one edit operation comprises searching the original XML document for one or more new entries.

7. The method of claim 6, wherein updating the database to reflect the change to the original XML document comprises inserting the new entries into the database.

8. The method of claim 1, wherein updating the database to reflect the change to the original XML document comprises updating database data from the original XML document.

9. The method of claim 1, further comprising re-annotating the original XML document for further processing.

10. The method of claim 9, wherein re-annotating the original XML document comprises updating the XML document to reflect one or more changes to the database data.

11. A system for managing XML documents, comprising:

- a computing device including a display, a user-input device, and a processing unit, and a memory module the memory module comprising:
 - a database module to retrieve data from a database, and to format and display the data in an original XML document;
 - an XML processing module to generate a copy of the original XML document and to annotate at least one of the original XML document and the copy of the XML document with an identifier that uniquely identifies each node in the document;
 - an XML editing module to accept edits to the original XML document and to modify at least one annotation to the XML data in response to the at least one edit;
 - an XML conversion module to identify at least one change to the original XML document as a result of the at least one edit operation; and to update the database to reflect the change to the original XML document.

12. The system of claim 11, wherein the XML processing module assigns an annotated identifier to each node in the original XML document.

13. The system of claim 12, wherein the annotated identifier is characterized by an attribute that is assigned a namespace that uniquely identifies an update process.

14. The system of claim 13, wherein the attribute is characterized by a name that is randomly generated.

15. The system of claim 11, wherein:
the XML processing module assigns an annotated identifier to each node in the original XML document; and
the XML editing module removes the annotated identifier from one or more nodes that are copies of another node in the document.

16. The system of claim 11, wherein the XML conversion module searches the original XML document for one or more new entries.

17. The system of claim 16, wherein the XML conversion module inserts one or more new entries in the original XML document into the database.

18. The system of claim 11, wherein the XML conversion module updates the database to reflect the changes to the data in the original XML data.

19. The system of claim 11, wherein the XML re-annotation module re-annotates the original XML document for further processing.

20. The system of claim 19, wherein the XML re-annotation module updates the XML document to reflect one or more changes to the database data.

21. One or more computer-readable media comprising computer executable instructions that, when executed on a computer, direct the computer to:

- receive an original XML document that includes information from a hierarchical database;
- generate a copy of the XML document;
- annotate at least one of the original XML document and the copy of the XML document with an identifier that uniquely identifies each node in the document;
- accept at least one edit operation to the original XML document;
- modify at least one annotation to the XML in response to the at least one edit operation;
- identify at least one change to the original XML document as a result of the at least one edit operation; and
- update the database to reflect the change to the original XML document.

22. The one or more computer-readable media of claim 21, further comprising computer executable instruction that, when executed, direct the computer to assign an annotated identifier to each node in the original XML document.

23. The one or more computer-readable media of claim 22, wherein the annotated identifier is characterized by an attribute that is assigned a namespace that uniquely identifies an update process.

24. The one or more computer-readable media of claim 23, wherein the attribute is characterized by a name that is randomly generated.

25. The one or more computer-readable media of claim 21, further comprising computer executable instruction that, when executed, direct the computer to:

assign an annotated identifier to each node in the original XML document;

and

remove the annotated identifier from one or more nodes that are copies of another node in the document.

26. The one or more computer-readable media of claim 21, further comprising computer executable instruction that, when executed, direct the computer to search the original XML document for one or more new entries.

27. The one or more computer-readable media of claim 26, further comprising computer executable instruction that, when executed, direct the computer to insert the new entries into the database.

28. The one or more computer-readable media of claim 21, further comprising computer executable instruction that, when executed, direct the computer to update database data from the original XML document.

29. The one or more computer-readable media of claim 21, further comprising logic instructions that, when executed on a computer, cause the computer to re-annotate the original XML document for further processing.

30. The computer-readable media of claim 29, further comprising computer executable instruction that, when executed, direct the computer to update the XML document to reflect one or more changes to the database data.